

R E M A R K S

Careful review and examination of the subject application are noted and appreciated.

Please add new claim 25.

SUPPORT FOR CLAIM AMENDMENTS

Support for the amendments to claims may be found in the specification, for example, on page 17 lines 6-11, page 20 lines 8-10, page 20 lines 16-20, page 26 lines 5-11, page 29 lines 9-13 and FIGS. 4, 6, 7, 9 and 10, as originally filed. As such, no new matter has been added.

CLAIM REJECTIONS UNDER 35 U.S.C. §112

The rejection of claims 1-9, 12, 13, 15-18 and 20-24 under 35 U.S.C. §112, first paragraph, has been obviated by amendment and should be withdrawn.

The rejection of claims 17, 18, 21 and 23 under 35 U.S.C. §112, second paragraph, have been obviated by amendment and should be withdrawn.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

The rejection of claims 1, 2, 5-9, 12, 13, 15, 16, 20, 22 and 24 under 35 U.S.C. §103(a) as being unpatentable over Sun, US Pub. No. 2003/0202705, (hereinafter Sun) in view of "Working Draft

Number 2 Revision 2" (hereinafter WD2) has been obviated by amendment and should be withdrawn.

The rejection of claims 3 and 4 under 35 U.S.C. §103(a) as being unpatentable over Sun in view of WD2 and Joch et al., US Pub. No. 2004/0101059 (hereafter Joch) has been obviated by amendment and should be withdrawn.

Sun concerns a system and method for lossless video coding (title). WD2 concerns a reference coding method to be used for the development of a new video compression method called JVTC Coding as ITU-T Recommendation (H.26L) and ISO/IEC JTCAI standard (MPEG-4, Part 10) (WD2 page 1). Joch concerns a low-complexity deblocking filter (title). In contrast, the present invention provides an apparatus generally having a first processing circuit and a second processing circuit. The first processing circuit may be configured to generate a plurality of reconstructed samples in response to a plurality of macroblocks of an input signal. The second processing circuit may be configured to (A) determine an intra prediction chroma mode 0 from a plurality of intra prediction chroma modes, (B) generate a plurality of sum values S0, S1, S2 and S3 based on the reconstructed samples for each of a plurality of chroma sub-blocks respectively of a current block, the sum values being used in a plurality of formulas and (C) determine a plurality of intra prediction chroma mode 0 predictors A, B, C and D for each of the chroma sub-blocks respectively. In a first case concerning

a first of the chroma sub-blocks having only the sum value S0 unavailable, the intra prediction chroma mode 0 predictors are generated using the formulas $A=(S2+2)/4$, $B=(S1+2)/4$, $C=(S3+2)/4$ and $D=(S1+S3+4)/8$. However, the proposed combination of references does not appear to include all of the claim limitations. Therefore, *prima facie* obviousness has not been established.

Claims 1, 12 and 13 are independently patentable over the cited references. Claim 1 provides a second processing circuit configured to (A) determine an intra prediction chroma mode 0 from a plurality of intra prediction chroma modes. Claims 12 and 13 provide similar language. In contrast, page 6 of the Office Action asserts that the proposed combination teaches only one mode for chroma prediction. As such, the proposed combination does not appear to render obvious a second processing circuit configured to determine an intra prediction chroma mode 0 from a plurality of intra prediction chroma modes, as presently claimed.

Claim 1 further provides that in a first case concerning a first of the chroma sub-blocks having only the sum value S0 unavailable, the intra prediction chroma mode 0 predictors are generated using the formulas $A=(S2+2)/4$, $B=(S1+2)/4$, $C=(S3+2)/4$ and $D=(S1+S3+4)/8$. Claims 12 and 13 provide similar language. In contrast, page 5 of the Office Action asserts that Sun does not teach a case where only a single one of the sum values is not present. WD2 does not appear to cure this deficiency.

Furthermore, both references appear to be silent regarding the use of the particular claimed formulas for predicting a single chroma sub-block. Thus, the proposed combination does not appear to include all of the claim limitations. Therefore, the proposed combination does not appear to render obvious that in a first case concerning a first of the chroma sub-blocks having only the sum value S0 unavailable, the intra prediction chroma mode 0 predictors are generated using the formulas $A=(S2+2)/4$, $B=(S1+2)/4$, $C=(S3+2)/4$ and $D=(S1+S3+4)/8$, as presently claimed. As such, the claimed invention is fully patentable over the cited references and the rejection should be withdrawn.

Claim 7 is independently patentable over the cited references. Claim 7 provides that the control circuit is further configured to determine a position of a top edge and a left edge of a chroma block of the current macroblock in a current slice. The Office Action cites section 4.4.4.1.3 of WD2 in the rejection. In contrast, the cited text, and the rest of WD2 appears to be silent in regards to determining a block position in a slice. Sun does not appear to cure this deficiency. Therefore, the proposed combination does not appear to render obvious that the control circuit is configured to determine a position of a top edge and a left edge of a chroma block of the current macroblock in a current slice, as presently claimed. As such, claim 7 is fully patentable over the cited references and the rejection should be withdrawn.

Claim 15 is independently patentable over the cited references. Claim 15 provides that each of the formulas used to generate each of the intra prediction chroma mode 0 predictors is selected independently in response to availability of the reconstructed samples adjacent to the chroma block. The Office Action cites section 4.4.4.1.3 of WD2 in the rejection. In contrast, the cited section of WD2 appear to teach a dependency among the formulas. Therefore, *prima facie* obviousness has not been established.

In particular, section 4.4.4.1.3 of WD2 appears to teach that (i) if $A=(S0+S2+4)/8$ then $B=(S1+2)/4$, $C=(S3+2)/4$ and $D=(S1+S3+4)/8$ (ii) if $A=(S0+2)/4$ then $B=(S1+2)/4$, $C=(S0+2)/4$ and $D=(S1+2)/4$, (iii) if $A=(S2+2)/4$ then $B=(S2+2)/4$, $C=(S3+2)/4$ and $D=(S3+2)/4$ and (iv) if $A=128$ then $B=128$, $C=128$ and $D=128$. WD2 appears to be limited to four fixed sets of formulas and the four formulas within each of the fixed sets are either all used or none of them are used. WD2 does not appear to teach any independence in the selection of formulas. Sun does not appear to cure this deficiency. The proposed combination does not appear to include all of the claim limitations. Therefore, the proposed combination does not appear to render obvious that each of the formulas used to generate each of the intra prediction chroma mode 0 predictors is selected independently in response to availability of the reconstructed samples adjacent to the chroma block, as presently

claimed. As such, claim 15 is fully patentable over the cited references and the rejection should be withdrawn.

Claims 22 and 24 are independently patentable over the cited references. Claim 22 provides that the second processing circuit is further configured to generate a signal that identifies a subset of the formulas used by the second circuit to generate the intra prediction chroma mode 0 predictors corresponding to the first chroma sub-block, the apparatus further comprising an encoder configured to generate a compressed and encoded video bit stream incorporating the signal. Claim 24 provides similar language. The Office Action cites FIGS. 2 and 3 and paragraphs 43 and 46 of Sun and section 4.4.4.1.3 of WD2 in the rejection. In contrast, the cited portions of both references do not appear to discuss a signal inserted into a bit stream where the signal identifies which of the formulas were used in the intra coding of the chroma sub-blocks. Therefore, *prima facie* obviousness has not been established.

In particular, the claims have been amended to clarify that the signal indicates which of the formulas were used during the intra coding of the chroma sub-blocks. Both of the references appear to be silent regarding the generation of any such signal. Furthermore, the claim interpretation used in the Office Action that the claims were directed to an intra coding mode of the chroma blocks is no longer applicable. Hence, the proposed combination does not appear to include all of the claim limitations.

Therefore, the proposed combination of references does not appear to render obvious that the second processing circuit is further configured to generate a signal that identifies a subset of the formulas used by the second circuit to generate the intra prediction chroma mode 0 predictors corresponding to the first chroma sub-block, the apparatus further comprising an encoder configured to generate a compressed and encoded video bit stream incorporating the signal, as presently claimed. As such, claims 22 and 24 are fully patentable over the cited references and the rejections should be withdrawn.

Claims 3 and 25 are independently patentable over the cited references. Claim 3 provides that (i) the first and the second processing circuits are part of a decoder and (ii) the second processing circuit is further configured to use a subset of the formula to generate the intra prediction chroma mode 0 predictors of the first chroma sub-block, the formulas in the subset being identified in a signal received within an compressed and encoded video bit stream. As noted above in the arguments for claims 22 and 24, the proposed combination of references appears to be silent regarding a signal within a bit stream, where the signal identifies which of the formulas were used during intra coding of the chroma sub-blocks. Since the proposed combination does not teach how to generate the claimed signal in an encoder, the proposed combination is also silent regarding how to use the

claimed signal in a decoder. Therefore, the proposed combination of references does not appear to render obvious that the first and the second processing circuits are part of a decoder and the second processing circuit is further configured to use a subset of the formula to generate the intra prediction chroma mode 0 predictors of the first chroma sub-block, the formulas in the subset being identified in a signal received within an compressed and encoded video bit stream, as presently claimed. As such, claim 3 is fully patentable over the cited references and the rejection should be withdrawn. Likewise, new claim 25 is fully patentable over the cited references and should be allowed.

Claims 2-9, 11, 15-18 and 20-24 depend, either directly or indirectly, from claims 1 or 13, which are now believed to be allowable. As such, the dependent claims are fully patentable over the cited references and the rejections should be withdrawn.

Accordingly, the present application is in condition for allowance. Early and favorable action by the Examiner is respectfully solicited.

The Examiner is respectfully invited to call the Applicants' representative between the hours of 9 a.m. and 5 p.m. ET at 586-498-0670 should it be deemed beneficial to further advance prosecution of the application.

If any additional fees are due, please charge Deposit
Account No. 12-2252.

Respectfully submitted,
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c/o Lloyd Sadler
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